# LOW-PASS FILTER TRANSMISSION LINE WITH INTEGRAL ELECTROABSORPTION MODULATOR

## ABSTRACT

A low-pass filter transmission line with an integral electro-absorption modulator is described. In one aspect, the electro-absorption modulator functions as an element of a distributed low-pass filter transmission line circuit that is impedance-matched to a target source impedance. In this way, the electrical voltage that is delivered across the electro-absorption modulator may be optimized because the electrical losses do not occur in the low-pass filter transmission line circuit, but rather substantially all incident power is absorbed in a downstream matched termination load. In another aspect, the electro-absorption modulator has a signal electrode with a segmented traveling wave structure that provides substantially the same modulation performance as a similar un-segmented signal electrode of comparable effective length, but is characterized by a substantially higher bandwidth.